

Section 916. EROSION CONTROL MATERIALS

916.01 Stone Used For Erosion Control. Cobblestone, coarse gravel and riprap shall be used for erosion control on slopes, in ditches and for the construction of erosion control devices including check dams. Natural stone used as cobblestone or riprap must be sound, non-stratified, durable rock. Where approved by the Engineer and not prohibited by permit requirements, sound pieces of broken concrete, with no protruding reinforcement, may be used in place of natural stone. Crushed bituminous pavement and broken brick shall not be allowed as an erosion control material.

- A. **Cobblestone.** Cobblestone shall consist of rounded or semi-rounded rock fragments with average dimension between 3 inches and 12 inches.
- B. **Coarse Gravel 3x1.** This material shall conform to commercially graded material with particles sized from $\frac{3}{4}$ inch to 3 inches.
- C. **Riprap.** Riprap shall be natural stone, solid precast concrete blocks made from Grade P2 concrete, or sound pieces of broken concrete, free from structural defects. All riprap shall be free of soil, bituminous and protruding reinforcing steel. The face of the precast concrete blocks shall be randomly scored with plane of weakness joints into sections with areas between 4 and 9 square feet. Lifting lugs cast into the concrete blocks shall not project above the finished surface of the concrete.

Riprap is classified as either plain or heavy based on the horizontal cross section dimensions ("footprint") and the in-place thickness of the individual pieces.

- 1. **Plain Riprap.** The "footprint" dimensions for natural stone and broken concrete shall range from 8 to 16 inches with in-place thickness of at least 8 inches. Smaller pieces may be used to fill spaces for better protection of the slope.

Precast concrete block used as plain riprap must be at least 6 inches thick and have a surface area no larger than 15 square feet.

- 2. **Heavy Riprap.** The "footprint" for natural stone and broken concrete shall be 16 inches in least dimension with the ratio of maximum to minimum dimension not exceeding 3 to 1. The in-place thickness shall be at least 8 inches.

Precast concrete block used as heavy riprap must be at least 16 inches thick and have a surface area no larger than 20 square feet.

916.02 Requirements for Specific Erosion Control Applications

- A. **Checkdams.** Cobblestone, coarse gravel, and pieces of broken concrete used for constructing checkdams shall range from 2 to 4 inches for ditch grades of less than 2 percent and 3 to 12 inches for ditch grades greater than 2 percent.
- B. **Stone Filled Bags.** Use stone meeting the gradation requirements for 6A aggregate given in Table 902-1.

- C. **Sand Filled Bags.** Use sand meeting the gradation requirements for Class II granular material in Table 902-3.
- D. **Aggregate Cover.** Use dense-graded aggregate 21AA or coarse aggregate 6A which meet the gradation requirements of Table 902-1 or coarse aggregate 3x1. Aggregate for aggregate cover shall be produced from natural aggregate, iron blast furnace slag, reverberatory-furnace slag or by crushing portland cement concrete. Use geotextile fabric which meets the requirements for geotextile separator in subsection 910.01C.
- E. **Gravel Access Approach.** Use dense-graded aggregate 21AA which meets the gradation requirements of Table 902-1 or coarse aggregate 3x1. Aggregate for gravel access approaches shall be produced from natural aggregate, iron blast furnace slag, reverberatory-furnace slag or by crushing portland cement concrete. Use geotextile fabric which meets the requirements for geotextile separator in subsection 910.01C.

916.02 Silt Fence. Geotextile for erosion control silt fence shall meet subsection 910.04. The geotextile shall be attached to machine pointed No. 2 common grade hardwood posts using at least five staples through wood lath which is a minimum of 3/8 inch thick and 2.0 feet long. Post spacing shall not exceed 6.5 feet. Posts shall be of sufficient length and cross-section to support the installed silt fence under full sediment load; however, posts shall have cross-sectional area of at least 2.25 square inches and shall be a minimum of 36 inches in length. Silt fence fabric shall be a minimum height of 2.5 feet. Silt fence shall have at least two permanent markings or affixed labels per assembled roll (100 feet) which positively identifies the fabricator.

916.03 Temporary Plastic Sheet or Geotextile Cover. Plastic sheets or geotextile covers are used for temporary cover to prevent erosion. Torn or punctured plastic sheets and geotextile cover shall be securely mended or patched with additional material of the same quality.

- A. Sheeting material shall be either plastic sheet, a minimum of 6.0 mils thick, with an ultra-violet ray inhibitor or polyvinyl chloride (PVC) a minimum of 10 mils thick. Between November 15 and April 1, or when frozen conditions are expected, PVC material must be used in lieu of the plastic sheet. Storage and handling of plastic sheet and PVC material shall be according to the manufacturer's recommendations. It shall not be exposed to heat or direct sunlight to the extent that its strength or toughness is diminished.
- B. Geotextile cover shall meet the requirements for geotextile blanket in subsection 910.03A.

916.04 Inlet Protection Fabric Drop. Use geotextile silt fence meeting subsection 916.02 and aggregate meeting gradation requirements for 34R or 6A in Table 902-2.

916.05 Inlet Protection Geotextile and Stone and Drop Inlet Sediment Trap. Use geotextile blanket meeting subsection 910.03.A and aggregate meeting gradation requirements for 34R or 6A in Table 902-2.

916.06 Sand Fence and Dune Stabilization. Fabric shall consist of high density polyethylene mesh with a ½ inch to 1 inch design opening. Sand fence shall be a minimum of 4 feet in height.